FLUKE®

Instruction Sheet

95.00

Model 801-600

AC Current Transformer

SPECIFICATIONS

Current Range:	2A-600A
Accuracy:	
30 to 100 Hz	±3%
100 Hz to 10 kHz	±1% (typical)
Frequency Response:	30 Hz - 1 kHz
Division Ratio:	1000:1
Insulation:	5 kV
Maximum Conductor Size:	2" diameter

MEASUREMENT CONSIDERATIONS

The following paragraphs contain measurement information that should be considered before attempting to use the probe.

Current Meter Compatibility

The 801600 is compatible with any ac current meter capable of reading a current equal to 1/1000 of the current to be measured. To take full advantage of the probe's accuracy a DMM accuracy of ±0.5% of reading is recommended. A voltmeter fitted with an external shunt will qualify as a suitable current meter. However, to ensure the probe's accuracy the shunt should be selected for a burden voltage (I-R drop at rated current) of not more than 200 mV.

When making a measurement the current carrying conductor is not broken, and remains electrically isolated from the

current meter input terminals. As a result the current meter's low-input terminal may be either floated or grounded.

Extended Current Measurement

The 80I600 specifications conservatively rate the probe's measurement range from 2 to 600 amperes. Actually, the range can be extended to include 1 to 2000 amperes with a negligible effect on accuracy.

Meter Readings

When the 80I600 is connected to a compatible current meter and clamped around a single current carrying conductor the meter will provide a current reading. The reading will be 1000X smaller than the actual measurement current. For example, a 5 ampere current will cause the meter to read 5 milliamperes (0.005).

If the probe is clamped around two wires carrying current in the same direction, the sum will be read. Reversing one of the wires causes the difference to be read. For increased sensitivity, one or more loops can be wrapped around the probe. Sensitivity is increased by the number of loops.

OPERATION

Use the following procedure to operate the 80I600:

1. Select and energize a compatible ac current meter.
2. Select the appropriate current range (1 mA reading per 1A input).
3. Clamp the probe around the desired current carrying conductor.
4. Multiply meter reading by 1000.

HEORY OF OPERATION

ne 80I600 Current Transformer is a clamp-on probe de-ned to extend the current measurement range of an ac rrent meter up to 600 amperes. Electrically, the probe is 1000 turn coil, as shown in Figure 2, and is equivalent to transformer's secondary winding. The current carrying nductor serves as the primary when inserted into the nsformer jaws. Current from the primary is coupled to e secondary, attenuated 1000X, and used to drive the ut of an ac current meter.

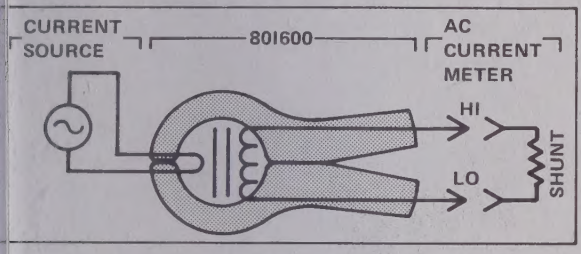

Figure 2. Simplified Circuit Diagram

AINTENANCE

rformance Test

rify the probe accuracy by measuring the output of a A ±0.2%, 60 Hz current source. When used with a com-ible voltmeter, the probe should measure the source rent with ±3% accuracy. No calibration adjustments are vided.

eaning

e a soft cloth dampened in a mild solution of detergent d water to clean the 80I600. Do not use solvents unless olutely necessary.

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INTRODUCTION

The Model 801600 (Figure 1) is a clamp-on current transformer designed to extend the current measuring capability of an ac current meter up to 600 amperes. A clamp-on coil designed into the probe allows measurements to be made without breaking the circuit under test. This coil serves as the secondary of a 1000:1 transformer. The current carrying conductor being measured serves as the primary. Because of a high effeciency, quadrature type of winding, wire size and location of the wire within the transformer jaws will not affect the accuracy of the current measurement.

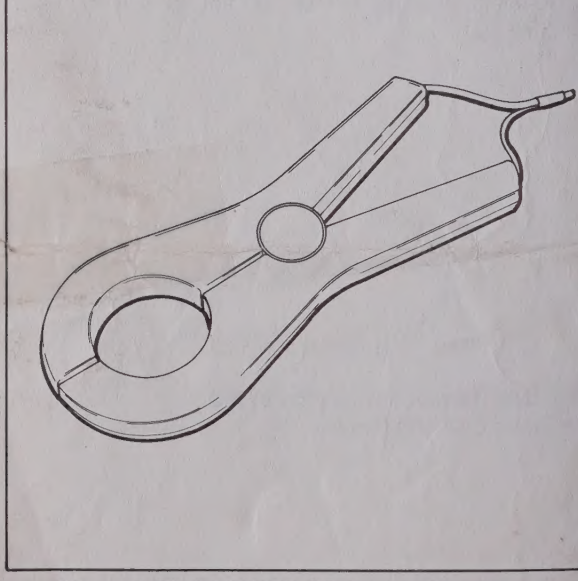

Figure 1. Model 801600 AC Current Transformer

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